

Magnetic Sensor & Actuator Materials

U N I V E R S I T Y O F U T A H

CENTER

The focus of this Center is the development and commercialization of products and processing techniques based on novel magnetic materials for sensors and actuators. The Center is located in a state of the art research and development laboratory responsible for the major discovery of magnetostriction in iron-gallium alloys.

TECHNOLOGY

The cornerstone of the Center's technology is the magnetostrictive iron-gallium (FeGa) alloy. Magnetostrictive materials are used as sensors and actuators because of their ability to change shape and elasticity in response to a magnetic field. Current magnetostrictive materials such as Terfenol-D are expensive, brittle and have a narrow operating temperature. The Center's technology improves upon these areas with FeGa, which is inexpensive, rugged and deformable, and has a wide range of operating temperatures.

Applications of the technology include high power ultrasonic and sonic devices, nano-positioners, sonar and acoustic devices, anti-lock braking systems, position and level sensors, and strain/load sensors. The applications cover many industries, such as medical, instrumentation, automotive, and aerospace.

ACCOMPLISHMENTS

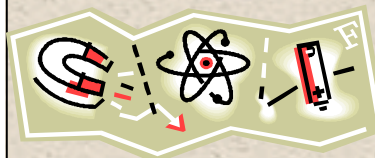
The Center has made progress building a prototype of an industrial ultrasonic cleaner and is testing the prototype of a nano-positioning/actuating device.

In its first year, the Center received \$142,370 in funding from the NSF as well as \$68,928 in private funding. The Center also filed two patent applications. Their technology was recognized as a finalist for the Stoel Rives Innovation awards for 2006.

Multiple companies have expressed interest in licensing the technology, which was developed in conjunction with Naval contracts. There are currently no manufacturers of FeGa.

THINK TANK

What if there was...



**A material that
could be used in
sonar, positioners,
and sensors that
resists corrosion
and can operate at
nearly any tem-
perature?**

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